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# Under-reporting of work-related musculoskeletal disorders in the Veterans Administration

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## Abstract

**Purpose** – Work-related musculoskeletal disorders following patient contact represent a major concern for health care workers. Unfortunately, research and prevention have been hampered by difficulties ascertaining true prevalence rates owing to under-reporting of these injuries. The purpose of this study is to determine the predictors for under-reporting work-related musculoskeletal injuries and their reasons.

**Design/methodology/approach** – Multivariate analysis using data obtained in a survey of Veterans Administration employees in the USA was used to determine underreporting patterns among registered nurses, licensed practical nurses and nursing assistants. Focus groups among health care workers were conducted at one of the largest Veterans Administration hospitals to determine reasons for under-reporting.

**Findings** – A significant number of workers reported work-related musculoskeletal pain, which was not reported as an injury but required rescheduling work such as changing shifts and taking sick leave to recuperate. The findings indicate that older health care workers and those with longer service were less likely to report as were those working in the evening and night shifts. Hispanic workers and personnel who had repetitive injuries were prone to under-reporting, as were workers in places that lack proper equipment to move and handle patients. Reasons for under-reporting include the time involved, peer pressure not to report and frustration with workers' compensation procedures.

**Originality/value** – This study provides insights into under-reporting musculoskeletal injuries in a major US government organization. The research indicates that current reporting procedures appear to be overtly cumbersome in time and effort. More flexible work assignments are needed to cover staff shortfalls owing to injuries. Health education on the detrimental long-term effects of ergonomic injuries and the need for prompt attention to injuries should prove useful in improving rates of reporting.

**Keywords** Injuries, Employees, Health services sector, Regression analysis, Focus groups, United States of America

**Paper type** Research paper

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## Introduction

Under-reporting injuries by health care workers continues to be a significant occupational safety problem (Pransky *et al.*, 1999; Wedle, 1996). The Occupational Safety and Health Administration (OSHA) requires employers to maintain logs of worker injuries so that appropriate risk reduction measures can be implemented in those industries that have disproportionately high rates of injuries. If employees reported all occupational injuries then medical insurance claims filed by injured employees and reported injuries on OSHA logs should be comparable. Unfortunately, such comparisons have revealed significant underreporting of work-related conditions (Murphy *et al.*, 1996). Some of this discrepancy may be the result of workers obtaining medical treatment and disability payments from sources other than workers' compensation (Fingar *et al.*, 1992), but much of it can be traced to under-reporting – particularly prevalent in the health care industry (Blegen *et al.*, 2004), which has significant ramifications in the retention and recruitment of health care workers. Common accidents and incidents underreported by health care workers include mucocutaneous blood exposure (Haiduven, 2000) and percutaneous injury related to handling needles and sharp instruments (Doebbeling *et al.*, 2003), assaults by patients and coworkers (Lipscomb and Love, 1992) and work-related musculoskeletal disorders (MSDs), (Smedley *et al.*, 1995; Hignett, 1996) – injuries associated mainly with patient handling and movement.

Issues pertaining to job hazard indirectly contribute to the shortage of health care workers in the USA. High rates of injuries, illnesses and lack of attention to safety are priority concerns among registered nurses (RNs), licensed practical nurses (LPNs) and nursing assistants (NAs) who assist in transferring and moving patients. A recent survey of over 1,000 registered nurses by the American Nurses Association, a national nurses trade organization, revealed that one in six nurses is not working in a nursing position because of "concern about safety in the health care environment" (American Nurses Association, 2001). Summarizing findings (Labar, 1992) of over 80 studies conducted in a number of countries, back and other ergonomic injuries to nurses have a worldwide point prevalence of approximately 17 percent, an annual prevalence of 40-50 percent and a lifetime prevalence of 35-80 percent. Injured nurses also contribute to about 25 percent of all claims and 33 percent of total compensation costs. Back pain is second only to the common cold as the most frequent cause for sick leave (Klein *et al.*, 1984; Haiduven, 2003). Musculoskeletal disorders are the result of acute episodes or occur slowly over time as a result of many small, sometimes imperceptible injuries leading to the misguided perception that minor MSDs do not pose a long-term health risk. Among injured workers with these conditions, a small proportion develops long-term disability, yet accounts for most of the work-related costs. It can be hypothesized that underreporting MSDs is more widespread owing to its chronic nature and may contribute to the nationwide shortage of nurses, often because early retirement from injury is taken, especially among those who handle patients. Henceforth, in this article, for purposes of brevity we will refer to all work-related musculoskeletal disorders incurred as a result of patient contact/handling as MSDs.

By not reporting injuries, employees may not receive adequate immediate or follow-up treatment, as well as treatment for long-term adverse health effects. Also workers may deny themselves benefits such as cash payments relating to workers' compensation insurance and medical expenses. Without accurate reporting the

organization's managers may be unaware of the extent of the problem and abstain from interventions designed to:

- reduce occupational injuries;
- determine accurate injury rates; and
- assess resultant risks of such injuries and injury trends.

The reasons for under-reporting injuries appear varied and complex and have not been fully explored, and research into under-reporting causes in health care services are usually facility or site specific involving small sample sizes (Ingham and Miller, 1982). Other reasons for under-reporting include difficulty determining the starting point for a cumulative injury, fear of reprisal from supervisors and co-workers, organizational barriers to reporting injuries and a misconception that work-injury is to be accepted as the downside of employment, especially in health care. Workers may also be divided on what constitutes a "reportable injury". The injury's seriousness and its effect on working ability may influence reporting patterns. Illness behavior or the propensity to seek help when ill is affected by such factors as age and social class (Green and Kreuter, 1991). An added incentive for non-reporting is that workers' compensation payments become available only after a certain waiting period, resulting in a loss of wages. Also, the disability claim itself may be contested, if not denied altogether. Non-adherence to established institutional lifting guidelines (e.g. getting assistance with lifting or using lifting equipment) resulting in injury, or plain carelessness may contribute to injury and subsequently non-reporting (Haiduven *et al.*, 1999).

## Research questions

The Veterans Health Administration (VHA), a unit within the Department of Veterans Administration (VA), provides health care and other services to over 25 million veterans via 23 Veterans Integrated Service Networks (VISNs) and VHA health care facilities. The VHA has over 150 hospitals and 800 ambulatory care and community-based outpatient clinics in addition to nursing homes, residential rehabilitation treatment and comprehensive home care programs. In 2001, over 11,000 injury claims in the VHA resulted in costs of medical care to injured employees exceeding $36 million and workers' compensation costs of over $100 million (Haihong, 2002). While the goal of the VA is to reduce injury rates and its associated costs, it is also committed to maintaining a safe working environment for its employees and encourages greater compliance in reporting occupational injuries. The research questions we seek to answer in this article are:

- What are the characteristics of health care workers who under-report injuries resulting in pain associated with work-related MSDs normally incurred in patient care in the VA?
- What are the predictors of under-reporting of MSDs resulting in pain by health care workers in the VA as determined by multivariate analysis of survey data?
- What are the main reasons for under-reporting injuries as perceived by a sample of health care workers at one of the large VA facilities located in Tampa, Florida in the USA?
- What is the policy implications associated with under-reporting?

## Methods

Our article is divided into two sections. First we use univariate and multivariate data analysis on the results of a large survey conducted in the VA to determine characteristics of health care workers who under-report injuries and determine predictors of under-reporting. Second, using focus groups of health care workers, we try to determine the reasons for under-reporting MSDs and conclude by offering suggestions to improve reporting rates.

### *Survey*

The VA's Office of Occupational Safety and Health Programs conducted an extensive mail survey of over 74,000 health care workers in 2001 to collect information on perceptions of the workplace and organization, demographic information and satisfaction with the VHA. The survey was conducted among employees at VA field facilities such as VA Medical Centers, Veterans Outreach Centers and Outpatient Clinics, VISN offices and the VA headquarters based in Washington, DC. The survey was composed of three parts:

(1) "Organizational and Personal Experiences", which captures overall impressions of conditions in the VHA organization and attitudes, opinions, and experiences related at work;

(2) "Workplace Inventory", which describes experiences in the health care environment and preferences for what the VHA should address as priorities in planning occupational health programs; and

(3) "Demographic Information" on the respondent, such as personnel data and work history.

An average of 45 minutes was the time estimated by VA administrators to complete the questionnaire.

### *Sample characteristics*

The survey was completed by clinical staff in direct patient care, ancillary staff such as physical and mental health therapists, and non-clinical personnel such as pharmacists. They included health care workers in primary care and specialty services. In our preliminary review of data, RNs, LPNs and NAs understandably reported the largest percentage of MSDs among all health care workers surveyed. Hence, in our final analysis we only included findings involving these three categories of care-givers because they are disproportionately engaged in tasks such as patient handling that are most likely to contribute to ergonomic injuries. Of the 74,000 health care workers surveyed, 56,500 were RNs, LPNs and NAs. A total of 15,319 (10,491 RNs, 2,639 LPNs and 2,189 NAs) completed the survey, representing a response rate of 27 percent for this group of clinical workers. As the response rate for all three categories of workers was similar, this sample provides a good representation of the population. Females comprised 84 percent of the 15,319 individual responses used in the final analysis. Seventy percent classified themselves as white, 6 percent as Hispanic and 17 percent as black in racial origin. The median age was between 50 and 59 years. Twenty percent of the respondents were employed in an acute or specialty care setting, with primary care constituting the second most common line of care at 14 percent. Seventy-eight percent ($n = 11{,}876$) did not report work-related musculoskeletal disorders resulting in pain in

the preceding calendar year (i.e. 2000). Among those who reported MSDs, injured personnel incurred an average of 1.4 injuries with close to 70 percent ($n = 2{,}488$) reporting one injury in the preceding year. Nursing Assistants incurred the highest rate of injuries. However, a significant number of workers comprising 2,464 RNs, 685 LPNs and 539 NAs ($n = 3{,}688$) employees claimed to have under-reported work-related MSDs resulting in pain that required rescheduling work such as changing shifts and taking sick leave to recuperate. The VHA operates many units with non-ambulatory patients that are a high-risk injury, including nursing home care and spinal cord injury units where NAs provide the majority of patient handling and moving tasks. These efforts may involve pushing and pulling tasks such as repositioning the patient, transferring the patient from bed to chair or assisting with activities of daily living such as bathing or feeding the patient.

## Findings

### *Under-reporting of MSDs*

This information was compiled from one of the questions in the survey. Question 1 in our survey instrument asked workers if they had work-related musculoskeletal pain in the last 12 months that was not reported as an injury but which required them to reschedule work (for example, change shifts, take sick leave)? This survey question addresses work-related musculoskeletal pain rather than work-related MSDs – the consequences of which are the objectives of this study. However, it is the question most likely to indicate MSDs and provide insights into reporting patterns, and was therefore used in the subsequent analysis. Responses to this question were dichotomous (yes/no). This response may be biased in drawing conclusions on under-reporting as severity of pain needed to trigger a yes response may vary across individuals as pain is not exactly defined in the question. Also, the term "reported" leaves much room for interpretation to the survey participant. It may imply an unofficial complaint to the supervisor/colleagues or a formal report to Occupational Health that results in an entry in the log of worker injuries. Hence, the response may be evaluating the participant's perception of under-reporting, rather than an actual measure of under-reporting. Also, cultural aspects affecting this issue (e.g. feeling pain and reporting injury) may vary across racial and ethnic lines. Under-reporting injuries was likely to be highest among LPNs and NAs, with one in four employees not reporting an MSD. The frequency among RNs, however, was only slightly less at 23 percent. Table I outlines under-reporting trends among all three categories of workers with the number of injuries reported. For example, 1,590 RNs reported one injury in the previous year, yet close to 35 percent of them did not report a subsequent injury that had consequences involving requiring them to change work patterns or result in absenteeism.

There was a significant association ($p < 0.01$, chi-square) for all three categories of care-givers between the percentage of employees who did not report subsequent MSDs with the number of injuries already reported. This may signal a frustration with the way previous reporting was handled by the organization's managers. It may also involve personal embarrassment or pressure from colleagues, peers and supervisors for being labeled as chronic complainers. Nevertheless, nurses' vulnerability to injury – because of conditions at work, age or lacking strength – appears to make them the most reluctant workforce to report subsequent work-related MSDs.

**Table I.**
Number of MSDs reported and not reported by RNs, LPNs and NAs ($n = 15,319$)

| Number of injuries reported | RNs | RNs (percentage of those who reported) who did not report subsequent injuries | LPNs | LPNs (percentage of those who reported) who did not report subsequent injuries | NAs | NAs (percentage of those who reported) who did not report subsequent injuries |
|---|---|---|---|---|---|---|
| 0 | 8,376 | 1,630 (19%) | 1,988 | 416 (21%) | 1,512 | 275 (18%) |
| 1 | 1,590 | 562 (35%) | 487 | 177 (36%) | 411 | 134 (33%) |
| 2 | 355 | 179 (50%) | 113 | 63 (56%) | 161 | 66 (41%) |
| 3 | 101 | 62 (61%) | 40 | 23 (58%) | 59 | 36 (61%) |
| 4 | 24 | 15 (63%) | 5 | 3 (60%) | 24 | 14 (58%) |
| 5 | 13 | 6 (46%) | 1 | 1 (100%) | 8 | 5 (63%) |
| 6 or more | 32 | 10 (31%) | 5 | 2 (40%) | 14 | 9 (64%) |
| Total | 10,491 | 2,464 (23.5%) | 2,639 | 685 (26%) | 2,189 | 539 (25%) |

*Theoretical framework for multivariate analysis*

A theoretical framework applicable to studying under-reporting is the PRECEDE/PROCEED Model (PPM), (Dejoy, 1996). This model was originally developed to evaluate health education programs and guide their development. The acronym PRECEDE stands for predisposing, reinforcing, and enabling constructs in educational and environmental diagnosis and evaluation; while PROCEED represents policy, regulatory, and organizational constructs in educational and environmental development. The PPM is based on epidemiological, social, behavioral, and educational sciences, as well as health administration principles. The PRECEDE model component contains predisposing, reinforcing, and enabling factors that influence a given health behavior or decision. Predisposing factors are an individual's or group's knowledge, attitudes, beliefs, values, and perceptions that positively or negatively influence motivation for a behavioral change. Included in predisposing factors are socio-economic and demographic characteristics of individuals. Enabling factors include skills, resources, or barriers that can affect behavioral and environmental changes. Reinforcing factors consist of feedback from others or rewards that are received following adoption of a behavior. These factors may hinder or facilitate continuation of such behavior. We used PRECEDE/PROCEED to test for causality. A logistic regression model was estimated with the dependent variable as the binary response to the previously mentioned Question 1 to determine the predictors for under-reporting work related MSDs by RNs, LPNs and NAs.

*Predictor variables*

A total of 162 questions comprised the survey. All responses were measured in ordinal or nominal scales to be marked on bubble sheets for scanning purposes. Five-point Likert scales, ranging from "strongly agree" to "strongly disagree" with a neutral option, were used to measure workers' perceptions on work conditions and overall satisfaction with patient care. Questions included those to determine the degree of under-reporting work-related injuries by care givers, especially as they pertain to needle stick or other sharp injuries, assaults by patients and staff, and MSDs that are usually sustained in the handling and movement of non-ambulatory patients. The data from the survey was provided by the Office of Occupational Health Programs in a digital format capable of easy access for statistical analysis purposes. In order to obtain robust estimators, missing values were standardized. Since all responses were categorized as ordinal or nominal variables, missing values were set equal to the most frequently chosen response to the particular question. After standardization, in order to obtain odds ratios, all explanatory variables were dichotomized appropriately to provide adjusted (odds) ratios on estimation that reflect the observed association between the two values of the dichotomized variable while simultaneously holding other variables constant statistically. For variables with more than one response, the dichotomous outcomes were chosen by collapsing the categories into the two that provided the best balance in frequency of outcomes. For example, respondent's age consisted of six categories in the questionnaire ($<20$ years, 20-29, 30-39, 40-49, 50-59 and $>60$ years). Collapsing the categories into the binomial outcomes ($<50$ years, $\geq 50$ years) produced frequencies that were approximately equal.

A total of 16 explanatory or independent variables were used in the model. We chose a set of predisposing, reinforcing and enabling factors that we hypothesized

influenced under-reporting using the PRECEDE/PROCEED model as reference. Predisposing variables included respondents' socio-demographic characteristics such as age, gender, race and ethnic identity, employment information such as years of employment in the VHA, whether employed part- or full-time, shift worked and clinical service. Reinforcing and enabling factors included the availability of equipment in the workplace that could have prevented the injury, knowledge of its use and whether the safety of workers is a big priority with management at the place of employment. Wald's chi-square tests were used to determine the degree of significance for estimated coefficients and associated 95 percent confidence intervals for statistical significance of odds ratio estimates. The statistical system SAS was used for the data analysis.

## Results

### *Regression analysis*

Table II lists our regression analysis results. Briefly, employees with a service of over five years in the VHA were almost 40 percent less likely to report injuries than their counterparts with less service, as were care-givers over 50 years of age. This is troubling, as under-reporting in this older population of healthcare workers may signal a general frustration with the manner in which reported injuries are handled in the VHA. Licensed Practical Nurses were marginally more likely to report an injury than RNs, which was to be expected as LPNs are engaged in more patient-handling tasks than RNs. Two questions in the survey identified race (whites/non-whites) and ethnicity (Hispanic and non-Hispanic). Hence two dichotomized variables captured the effect of race and ethnicity in under-reporting. Although statistically there was no difference between white and non-white reporting patterns, Hispanic care-givers were a third more likely not to report injuries than their non-Hispanic counterparts. Staffing issues appear to contribute to the likelihood of reporting, with those working more than 80 hours per pay period or two calendar weeks were 20 percent more likely to report. Understandably, fatigue from overwork may result in employees becoming more prone to injury. The evening shifts and the night schedule are equally likely to contribute to under-reporting as compared to workers on the day schedule. Our fieldwork shows that evening and night shifts are usually staffed at lower levels than day shifts.

The VHA is a government organization with congressional budgetary appropriations to cover operating expenses. Injured employees at the VHA are not usually replaced on a temporary basis in their work units as in the private sector, as no monies are allocated. Budgetary appropriations, therefore, are unavailable or in accessible to temporarily replace injured employees. Hence, at times when the units are lightly staffed, there may be a greater reluctance to report as the injured staff member may be placed on restricted duty with a detrimental effect on co-worker morale and workload. Further, the occupational health units and emergency departments at VHA facilities, where onsite care is provided to injured workers by medical personnel, may be open only during daytime hours, causing workers to seek medical help elsewhere. Those who had already reported more than three work-related injuries were more than twice as likely to not report subsequent injuries. Workers in places that lack proper equipment to move and handle patients were more likely to under-report, and people trained in the use of equipment were almost twice as likely to report. There was a statistically significant association ($p < 0.01$) between the number of injuries reported by the three categories of care-givers and the availability of safety equipment that

**Table II.**
Results of logistic regression analysis

| Variable ($n = 15,319$) | Measurement | Mean (SD) | Coefficient | 95 percent Wald confidence intervals |
|---|---|---|---|---|
| *Dependent variable* | | | | |
| Have you had work-related musculoskeletal pain which was not reported as an injury? | 0: yes<br>1: no | 60 | | |
| Intercept | | | $-0.613^{**}$ | |
| How long have you been in your present job within the organization? | 0: $<5$ years<br>1: $\geq 5$ years | 0.45 (0.49) | $1.42^{**}$ | 1.31-1.54 |
| What is your clinical job category: RN versus NA? | 0: RN<br>1: NA | 0.12 | 0.95 | 0.85-1.07 |
| What is your clinical job category: RN versus LPN? | 0: RN<br>1: LPN | 0.20 | $1.15^{**}$ | 1.04-1.27 |
| What is your age? | 0: $<50$ years<br>1: $\geq 50$ years | 0.45 (0.49) | $0.84^{**}$ | 0.77-0.91 |
| What is your gender? | 0: male<br>1 female | 0.84 (0.37) | $0.91^{*}$ | 0.83-1.01 |
| What is your racial origin? | 0: non-white<br>1: white | 0.71 (0.46) | $0.99^{**}$ | 0.91-1.08 |
| What is your ethnic origin? | 0: non-Hispanic<br>1 = Hispanic | 0.05 (0.22) | $1.35^{**}$ | 1.14-1.59 |
| How many hours do you work on average in a two-week period at VA? | 0: = 80 hrs<br>1: >80 hrs | 0.14 (0.52) | $1.19^{**}$ | 1.05-1.32 |
| Which of the following best describes the hours you usually work at this (main) job? | 0: Day schedule (6 am to 6 pm)<br>1: Evening (2 pm to 12 am) | 0.61 (0.32) | $1.12^{*}$ | 0.98-1.26 |
| Which of the following best describes the hours you usually work at this (main) job? | 0: Day schedule (6 am to 6 pm)<br>1: Night (9 pm to 8 am) | 0.71 (0.41) | $1.16^{**}$ | 1.03-1.31 |
| How many work-related injuries have you reported in the last 12 months? | 0: $\leq 3$ injuries<br>1: $>3$ injuries | 0.01 (0.09) | $1.97^{**}$ | 1.36-2.85 |
| Does equipment exist to prevent injuries in the task in which you were injured? | 0: yes<br>1: no | 0.61 (0.28) | $1.81^{**}$ | 1.57-2.07 |
| If equipment exists were you trained in its use? | 0: yes<br>1: no | 0.62 (0.14) | $0.67^{**}$ | 0.51-0.87 |
| The safety of workers is a big priority with management where I work | 0: disagree<br>1: agree | 0.72 (0.27) | $2.32^{**}$ | 2.15-2.52 |

**Notes:** Wald's chi-square test of significance: $^{**}p < 0.01$; $^{*}p < 0.10$

could have prevented the injury. Seventy percent of respondents agreed that safety of workers was a priority for managers and overwhelmingly sided with management's handling of safety issues.

A majority reported a lack of proper equipment that could have averted the injury. We were unable to ascertain from the survey what was the proper equipment from the respondent's viewpoint. Even if equipment to handle and move patients was available in the facility, chances were high that workers were untrained in its use. At facilities lacking equipment, injured workers were almost twice as likely to not report, as also were those not trained in the use of such equipment. Modern technology has greatly negated the need to lift and handle patients and equipment has reduced injuries in a cost-effective manner (Shannon and Lowe, 2002). Equipment includes:

- manual and mechanical lateral sliding aids that assist lateral patient transfers;
- powered full-body sling lifts, both floor-based and ceiling-mounted, which are vertical transfer devices appropriate for physically dependent patients; and
- powered standing assist and repositioning lifts that provide an alternative to full-body sling lifts and gait/transfer belt with handles that wrap around the waist of a patient providing handles for a worker to grasp when assisting or transferring patient.

*Possible shortcomings of findings from multivariate analysis*

Under-reporting occupational injuries among care-givers is a vast and complicated problem. The limited analysis presented in this study may not fully explore the breath and depth of underreporting. The shortcomings of this study can be briefly summarized as:

- The respondents to the survey question on under-reporting probably include a disproportionate share of those more likely to under-report work-related MSDs (Spiegel *et al.*, 2002). Hence, the findings in our study are probably biased towards that group and probably represent an overestimation of the problem of work-related MSDs in the VA.
- We were unable to control the place of work effect in our analysis. Nurses in such units as the Nursing Home and Spinal Cord Injury units would be more prone to injury owing to the patients' characteristics. Our study may not adequately capture the breadth and depth of the problem. The findings from this study may be biased towards government and non-profit organizations where under-reporting would probably be less pronounced than in a private organization where incentives may exist to under-report (Pransky *et al.*, 1999).
- The wording of the question used to determine the magnitude of under-reporting may not fully capture the differences in health outcome measures, such as pain, discomfort, disability, or compensation associated with injuries. Pain tolerance and acceptance, as a consequence of employment, may contribute to bias in reporting patterns. In order to objectively determine the extent of under-reporting, some type of comparison must be made between self-reported measures and some other objective measure of health outcome, such as injury logs, record of lost days, medical claims data, or disability or compensation data. Unfortunately we were unable to verify claims owing to the absence of respondent identifiers from the data. Relying solely on self-report data therefore

seems to be problematic owing to the subjective nature of this approach, which makes it difficult to draw sound conclusions about under-reporting.

*Findings from focus groups on reasons for under-reporting*

Qualitative research methods are used extensively in the social sciences to explain human interaction in social settings, and to understand the interactions among people and their social, physical and organizational environments. Though qualitative research is relatively new to health services research, it can be used to inform clinical practice, health care delivery changes, integration of theory, development of research agendas, and policy innovations (Sofaer, 1999). Grounded theory is a systematic research approach for the collection and analysis of qualitative data to generate explanatory theory that furthers the understanding of social and psychological phenomena. One of the major tools used in qualitative research are focus groups of stakeholders and others using a series of prompts to elicit answers to questions. Unlike surveys, where participants are unaware of others responses, focus groups involve group meetings that encourage debate and consensus building. The responses are synthesized to provide answers to the research questions. To determine the reasons for not reporting MSDs, we conducted a series of focus groups at the James A. Haley Veterans Administration Medical Center in Tampa, Florida – one of the largest VHA teaching facilities. This 337-bed hospital is known for its extensive specialty clinics and services among federal hospitals. A 240-bed nursing home is adjacent to the main hospital. Hospital utilization comprised close to half a million patient days and 4.7 million outpatient in the 2003 fiscal year. Focus groups conducted with direct care providers after analysis of the 2001 survey data were an effective tool for assessing the reasons for under-reporting. Focus groups were conducted in the Spinal Cord Injury unit, Emergency Room, Psychiatric unit, Medical Intensive Care Unit, and the Nursing Home. These locations were chosen as prior studies done internally at the hospital had indicated that personnel in these units were most prone to injury. A total of 28 nursing personnel participated in the five locations. Groups averaged five participants per discussion. Potential participants were provided adequate opportunities to participate by posting flyers through out the facility. After obtaining informed consent, participants were probed as to what constitutes an MSD associated with patient handling, what factors came into consideration in reporting MSDs, an explanation of reasons for not reporting MSDs in the past, and attitudes towards co-workers who had reported a patient handling injury. Barriers to reporting were found to be both the result of respondents' attitudes to these injuries as well as the perceived realities of the reporting process. Briefly, highlights of the responses can be summarized as follows:

- There was consensus that any injury that occurs as a result of physical contact with patients can be classified as a MSD. They can result from transferring, lifting, transporting, or turning patients. There was less agreement on whether being injured in the use of equipment to move patients constituted a patient-related injury.
- The three criteria that nurses use in deciding whether or not to report are the perceived degree of injury, staffing situation, and peer attitudes. Work-related MSDs are to be expected as the repercussion of patient handling and should be tolerated to the degree that it does not interfere with work activities or cause major suffering. There was considerable discussion as to what constituted

"a reportable injury". A consensus, though erroneous, appeared to be that only if pain persists after 24 hours should consideration be given to reporting. This is unfortunate as the full magnitude of repeated MSDs manifests itself as chronic injury (Evanoff *et al.*, 2002).

- A high level of resistance is encountered from peers to not report injuries and "minimize the situation" unless serious as the remaining staff are then burdened with the injured employees tasks associated with patient tasks. This may be especially critical where patient handling by individuals is discouraged to reduce injury rates in favor of "lift teams" comprising more than one individual. Many countries, such as Britain, have patient handling and moving policies, wherein all hazardous manual handling tasks, such as lifting and moving patients by individuals, are avoided by education and by training care-givers participating in patient-handling tasks.
- Problems are encountered in the reporting process, including the time taken to report an injury, which can extend up to three hours, and suspicion on the part of supervisors and peers as to the seriousness of the injury. The frequent non-availability of emergency and occupational health personnel compromises reporting.
- Frustration with worker's compensation procedures discourages reporting and employees are better-off taking personal or sick leave to recuperate. Occupational health personnel usually prescribe the minimum treatment.
- Lack of proper equipment leads routinely to many ergonomic injuries that cannot possibly all be reported owing to time and other constraints. This is especially true in units like the Emergency Room where seriously ill patients have to be moved from their vehicles to the clinic.
- If a serious injury occurs then there was unanimous consent that co-workers were appreciative of the situation and would assist the injured employee in every possible manner.

## Conclusion and policy implications

This brief study provides insights into under-reporting MSDs in a major government health care organization. Any workplace intervention designed to increase reporting should be applied concurrently with safety measures to improve work conditions. Safety programs should be designed to decrease injuries with a stimulus to avoid under-reporting. Given the inadequacy of present day literature, observational studies and case-controlled experiments should be conducted on reporting compliance before and after policy or practice changes. The current reporting procedures appear to be overtly cumbersome in time and effort. More flexible work assignment to cover staff shortfalls owing to injuries and health education on the detrimental long-term effects of MSDs and the need for prompt attention to injuries should prove useful. Modern technology, such as the internet, can be used to enhance reporting rates as well as in applying for short- and long-term disability benefits. The present system of relying on OSHA logs is inadequate for surveillance purposes and greatly underestimates the full burden of occupational injuries and illnesses. Workers' compensation documents, physician systems and medical records of treatment charged to workers' compensation, can together provide better clues to under-reporting. The

occupational health nurse's role should include early identification of injury, treatment coordination and follow up, matching worker abilities and restrictions to the job, and implementation of an injury prevention and enhanced reporting program. Programs for injury prevention and enhanced reporting should be worksite-specific. What is successful for the Veterans Health Administration or a government organization may not be best suited for the private sector.

## References

American Nurses Association (2001), "Nurses say health and safety concerns play major role in employment decisions", press release, September, available at: www.nursingworld.org/

Blegen, M.A., Vaughn, T., Pepper, G., Vojir, C., Stratton, K., Boyd, M. and Armstrong, G. (2004), "Patient and staff safety: voluntary reporting", *American Journal of Medical Quality*, Vol. 19 No. 2, pp. 67-74.

Dejoy, D.M. (1996), "Theoretical models of health behavior and workplace self-protective behavior", *Journal of Safety Research*, Vol. 27, pp. 61-72.

Doebbeling, B.N., Vaughn, T.E., McCoy, K.D., Beekmann, S.E., Woolson, R.F., Ferguson, K.J. and Torner, J.C. (2003), "Percutaneous injury, blood exposure, and adherence to standard precautions: are hospital-based health care providers still at risk?", *Clinical Infectious Diseases*, Vol. 37 No. 8, pp. 1006-13.

Evanoff, B., Abedin, S., Grayson, D., Dale, A.M., Wolf, L. and Bohr, P. (2002), "Is disability underreported following work injury?", *Journal of Occupational Rehabilitation*, Vol. 12 No. 3, pp. 139-50.

Fingar, A.R., Hopkins, R.S. and Nelson, M. (1992), "Work-related injuries in Athens County, 1982 to 1986: a comparison of emergency department and workers' compensation data", *Journal of Occupational Medicine*, Vol. 34, pp. 779-87.

Green, L. and Kreuter, M. (1991), *Health Promotion Planning*, 2nd ed., Mayfield Publishing Co., Mountain View, CA.

Haiduven, D. (2000), "Circumstances surrounding blood exposures and needle safety practices in home healthcare nurses", doctoral dissertation, University of California, San Francisco, CA.

Haiduven, D.J. (2003), "Lifting teams in healthcare facilities: a literature review", *American Association of Occupational Health Nurses Journal*, Vol. 51 No. 5, p. 218.

Haiduven, D.J., Simpkins, S.M., Phillips, E.S. and Stevens, D.A. (1999), "A survey of percutaneous/muscocutaneous injury reporting in a public teaching hospital", *Journal of Hospital Infection*, pp. 151-4.

Haihong, H. (2002), *Injuries and Illnesses in the Veterans Health Administration: Distribution, Reporting Behavior and Strategic Implications*, Department of Environmental and Occupational Health, School of Public Health, George Washington University, Washington, DC.

Hignett, S. (1996), "Work-related back pain in nurses", *Journal of Advanced Nursing*, Vol. 23 No. 6, pp. 1238-46.

Ingham, S. and Miller, J. (1982), "Consulting with mild symptoms in general practice", *Social Psychology*, Vol. 17, pp. 77-88.

Klein, B.P., Jensen, R.C. and Sanderson, L.M. (1984), "Assessment of workers' compensation claims or back strains/sprains", *Journal of Occupational Medicine*, Vol. 26, pp. 443-8.

Labar, G. (1992), "A battle plan for back injury prevention", *Occupational Hazards*, Vol. 11, pp. 29-33.

Lipscomb, J.A. and Love, C.C. (1992), "Violence toward health care workers: an emerging occupational hazard", *American Association of Occupational Health Nurses Journal*, Vol. 40 No. 5, pp. 219-28.

Murphy, S.L., Sorock, G.S., Courtney, T.K., Webster, B.S. and Leamon, T.B. (1996), "Inquiry and illness in the American workplace: a comparison of data sources", *American Journal of Industrial Medicine*, Vol. 30, pp. 130-41.

Pransky, G., Snyder, T., Dembe, A. and Himmelstein, J. (1999), "Under-reporting of work-related disorders in the workplace: a case study and review of the literature", *Ergonomics*, Vol. 42 No. 1, pp. 171-82.

Shannon, H.S. and Lowe, G.S. (2002), "How many injured workers do not file claims for workers' compensation benefits?", *American Journal of Industrial Medicine*, Vol. 42 No. 6, pp. 467-73.

Smedley, J., Egger, P., Cooper, C. and Coggon, D. (1995), "Manual handling activities and risk of low back pain in nurses", *Occupational and Environmental Medicine*, Vol. 52 No. 3, pp. 160-3.

Sofaer, S. (1999), "Qualitative methods: what they are and why use them?", *Health Services Research*, Vol. 34, pp. 1101-18.

Spiegel, J., Yassi, A., Ronald, L.A., Tate, R.B., Hacking, P. and Colby, T. (2002), "Implementing a resident lifting system in an extended care hospital: demonstrating cost-benefit", *American Association of Occupational Health Nurses Journal*, Vol. 50 No. 3, pp. 128-34.

Wedle, M.G. (1996), "Reporting occupational injuries: the first step", *Journal of Safety Research*, Vol. 27, pp. 217-23.

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